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FEDERAL COMMUNICATIONS COMMISSION
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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
	)	
	)	
Forward-Looking Mechanism for High Support for Non-Rural LECs	)	CC Docket No. 97-160

COMMENTS OF AMERITECH REGARDING CUSTOMER LOCATION ASPECTS OF COST MODEL

Ameritech[1] submits these comments on the customer location aspects of a potential model for the calculation of forward-looking costs of services that are supported by the universal service mechanism in states that elect not to submit cost studies.[2]

I. GEOGRAPHIC UNIT

The Commission concluded in the Universal Service Order that the geographic area used to determine the cost of supported services should be no larger than a wire center.[3] In addition, the Commission concluded that a smaller

[1] Ameritech means: Illinois Bell Telephone Company, Indiana Bell Telephone Company, Incorporated, Michigan Bell Telephone Company, The Ohio Bell Telephone Company, and Wisconsin Bell, Inc.

[2] *In the Matter of Federal-State Joint Board on Universal Service, Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket Nos. 96-45, 97-160, Further Notice of Proposed Rulemaking, FCC 97-256 (released July 18, 1997) ("FNPRM") at ¶¶39-54.

[3] *In the Matter of Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report and Order, FCC 97-157 (released May 8, 1997) ("Universal Service Order") at ¶250.

area should be used, if feasible. Also, the Commission concluded that such small geographic areas lead to more accurate cost estimates with fewer disparities in the costs of serving different customers in the same area and permit the FCC to target universal service support more efficiently.

Ameritech agrees with these general conclusions. However, these conclusions do not determine the specific geographic areas to be used in calculating the cost of supported services. The spectrum of potential geographic units spans from an entire service area of a company to specific customer locations. While the Commission appropriately eliminated large geographic areas such as companies' entire service areas and slightly smaller areas such as rate bands and access areas, the viable spectrum still ranges from wire centers to census block groups (CBGs) to distribution areas to census blocks (CBs) to "grid cells" to customer locations.

In order to help the Commission in determining clearly the appropriate geographic areas that are consistent with these conclusions, Ameritech recommends that the Commission examine the following dimensions of any proposed geographic unit: (1) company-specific accuracy; (2) customer-specific targeting; and (3) practical and administrative feasibility. First, the cost of supported services should be estimated accurately for each selected geographic area, and each geographic area should be bound accurately within a specific ILEC

wire center. Geographic units such as wire centers and distribution areas are bound within individual companies, while census-related geographic units must at a minimum struggle to eliminate any overlapping between different wire centers. Second, the closer geographic areas are to specific customer locations, the fewer disparities in costs of serving different customers within these same areas. Finally, the practical and administrative constraints of implementing cost development based on specific geographic units should be examined. Using this framework Ameritech recommends that the Commission adopt ILEC distribution areas as the basic geographic unit used to determine the cost for supported services.

Within this framework, census areas and other units such as "grids cells" can be evaluated. Specifically, the Commission requested further comment on using CBGs, CBs and "grid cells" as the geographic basis for calculating the cost of supported services.[4] Census geography such as CBGs and CBs rely, in part, on political boundaries. In particular, these areas do not match the boundaries of ILEC wire centers. In order to produce any estimates within a wire center, algorithms are necessary to allocate either CBG or CB characteristics of businesses and households to appropriate wire centers. A prerequisite to the development of accurate assignments is reliable geocoding of wire center

[4]"Grid cells" are not census-defined geographic units. Ameritech is not aware of any direct data providing household or business locations using this geographic unit. Consequently, Ameritech has restricted its discussion to CBGs and CBs.

boundaries. Then, CBGs and CBs should be overlaid on wire center boundaries to identify any straddling of these boundaries. Because CBs are smaller geographic areas than CBGs, the size of straddling areas should be smaller for CBs. Nevertheless, the allocation of businesses and households within CBs to the appropriate wire centers will undoubtedly require significant computing resources, while even more significant discrepancies exist between the larger CBGs and wire centers. These problems are compounded if CBGs and CBs are compared with distribution areas. Consequently, CBGs fall significantly short in providing company-specific accuracy. Also, while CBs are likely to provide more accurate estimates than CBGs, their use suffers in practical and administrative feasibility.

If CBGs and CBs were the only potential geographic units from which to choose, additional analysis comparing their strengths and weaknesses might be merited. However, there is another geographic unit used by ILECs that is superior to these census-based units. The forward-looking design of loop plant currently used by Ameritech for providing supported services within a wire center is based on the serving area concept (SAC). Loop plant under SAC divides the loop network into two parts: feeder plant and distribution plant. The serving area interface (SAI) is the connection between these parts. The fundamental geographic unit used to implement SAC is the distribution area (DA). Hence, wire centers are divided into many DAs. DAs have defined boundaries which usually

correspond with streets, property lines, railroads, rivers or creeks, or fence lines. These boundaries should be considered permanent once they have been established. DAs contain between 200 and 600 *ultimate* living units or business lines based on the proposed land usage, not necessarily on what exists today. The reliance on ultimate requirements for defining DAs and the permanency of DA boundaries are fundamental to the long-run efficiency of serving customers. Ameritech's current DAs follow these guidelines. Existing DAs are the best geographic unit for constructing forward-looking costs of loop plant. Ameritech has the serving addresses for customers by DAs. Consequently, the maximum company-specific accuracy that is practical and administratively feasible with respect to customer location can be attained for Ameritech's wire centers by using DAs as the basic geographic unit for determining the cost of supported services.[5]

II. DISTRIBUTION OF CUSTOMERS

The Commission has tentatively concluded that "a clustering algorithm would more accurately distribute customers within some CBGs and would consequently generate more accurate estimates of loop length and, therefore, of the cost of the outside plant."[6] In addition, the Commission has tentatively

[5]While customer-specific locations could theoretically be used as the basic geographic unit instead of DAs, developing unique costs for providing the supported services for each customer location is neither practical nor administratively feasible. As a single example, if a new location was established, not only would a new cost need to be computed for this location, but the costs for many other locations in the same wire center would change.

[6] FNPRM at ¶44.

concluded that the locations of CBG population centroids relative to the wire centers are important for accurately determining costs for supported services and, therefore, the selected mechanism should be more precise than the current versions of BCPM and Hatfield permit.[7]

Certainly, the assumption that customers are uniformly distributed over large areas is not accurate. But, neither can any clustering algorithm be accurate because it still would not rely on direct dispersion information.

Bellcore's Loop Engineering Information System (LEIS) has a module that Ameritech uses that does have the addresses where all of its customers' circuits terminate as well as the count of each circuit type.[8] If these locations are geo-coded, then the actual dispersion of customers is known. Ameritech is geocoding these locations and has geo-coded a majority of them. Consequently, for companies such as Ameritech, proxy techniques such as clustering algorithms are unnecessary and inappropriate when actual dispersions are available.

The Commission also seeks comment "on the availability, feasibility, and reliability of software that will geo-code households."[9] Ameritech has used

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[7] *Id.*

[8] Ameritech's Facility Assignment and Control System (FACS) has circuit data by distribution area that includes an appropriate circuit identifier and at least partial address information. In the ordinary process of developing loop costs within Ameritech, this information is extracted from Loop Engineering Information System/Loop Engineering Assignment Data (LEIS/LEAD) which regularly receives updated information from FACS. Ameritech then uses the circuit identifier and its Ameritech Integrated Marketing System (AIMS) to complete any partial address that came from FACS.

[9] FNPRM at ¶44.

MapInfo's MapMarker v3.0 software to geo-code customers' locations.[10] Customers' serving addresses that are obtained from FACS, LEIS/LEAD and AIMS are entered into MapMarker to generate geo-codes. MapMarker also provides a result code that indicates the precision of the geo-code output, i.e., whether the geo-code is an exact match or one of several different, less precise assignments. Ameritech continues to refine this successful process in order to achieve the maximum feasible number of exact matches.

III. LINE COUNT

The Commission has concluded that reliable line counts are necessary for determining accurate cost estimates.[11] In particular, the Commission seeks any reliable method that could correct shortcomings of using census-based or other geographic units to determine line counts. Consequently, the Commission also seeks comment on closing factors to force line count estimates to match the wire center line counts. The Commission further seeks comment on setting maximum limits on such closing factors.[12]

The band-aid approach that results from proxy cost models using geographic units that do not correspond to either wire centers or DAs is painfully

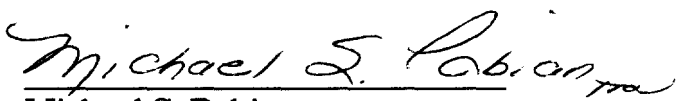
[10]MapInfo describes its current product line including MapMarker on its homepage: http://www.mapinfo.com.

[11] FNPRM at ¶53.

[12] *Id.*

clear. For example, the application of a maximum closing factor as suggested by some Joint Board members would be a stark admission of the unreliability of any approach that requires such an arbitrary restriction. Ameritech has line counts by DAs within its network operating systems, FACS and LEIS/LEAD. This information should be available in comparable operating systems of other non-rural companies. If the Commission adopts Ameritech's recommendation to use DAs, these band-aid solutions should not be needed.

Respectfully submitted,



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[MSP0060.doc]

CERTIFICATE OF SERVICE

I, Todd H. Bond, do hereby certify that a copy of the foregoing Comments of Ameritech Regarding Customer Location Aspects of Cost Model has been served on all parties listed on the attached service list, via first class mail, postage prepaid, on this 2nd day of September, 1997.

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